

Vatsal Varshney

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EDUCATION

Indian Institute of Technology, Delhi

Bachelor of Technology in Mathematics and Computing

CGPA: 9.636

2021 – Present

Shanti Niketan Vidyapeeth School

AISSCE (CBSE Class XII)

Grade: 99.33% (PCM)

2019–2021

Dewan Public School

AISSE (CBSE Class X)

Grade: 99.8%

2019

PROJECTS AND ASSIGNMENTS

Nearby Search

October 2022

Prof. Ashish Chiplunkar, IIT Delhi

- Designed an Algorithm to report all points from a list of points on 2D plane, which are within a given distance from a query location.
- Implemented in Python using **2D Range Tree** Data Structure

Multiple Object 1D Collision Detector

October 2022

Prof. Ashish Chiplunkar, IIT Delhi

- Implemented an algorithm to enlist the times and positions of all collisions between a set of blocks in an ideal 1D setting, given their masses, initial positions and velocities
- Implemented in Python using **Binary Min Heap** Data Structure

Maximum Minimum-Capacity Path Finder

November 2022

Prof. Naveen Garg, IIT Delhi

- Designed an algorithm to compute the optimum path in a computer network through which the size of allowable packet is maximum.
- Implemented in Python using **modified Dijkstra's algorithm** on Graph Data Structure in Adjacency list representation

Learning Management System

August 2022

DevClub, IIT Delhi

- Built a complete Learning Management app using Django framework.
- Implemented user authentication and authorization, file upload and management, Assignment submission and grading, Grade calculator

SCHOLASTIC ACHIEVEMENTS

- Emerged as **National Topper** in Class 10 CBSE Board Exam 2019 among 1.8 million candidates
- Achieved **All India Rank 579** in JEE Advanced 2021 among 141k candidates
- Achieved **All India Rank 107** in JEE Mains 2021 among 939k candidates
- Recipient of **Semester Merit Prize** twice at IIT Delhi for excellent academic performance in 1st and 2nd semester
- Qualified for **Mathematics Olympiad** Orientation Camp 2021 after excelling in Indian National Mathematics Olympiad
- Qualified for **Astronomy Olympiad** Orientation Camp 2021 after securing **All India Rank 31** in Indian National Astronomy Olympiad and **national top 1%** in Indian Olympiad Qualifier in Astronomy
- Awarded the prestigious Kishore Vaigyanik Protsahan Yojana (**KVPY**) **Fellowship** 2021 by the Department of Science and Technology, Govt. of India and IISc Bangalore for an **outstanding aptitude for research**
- Recipient of the National Talent Search (**NTS**) **Scholarship** 2019 by the National Council of Educational Research and Training (NCERT), awarded to 2000 students possessing **exceptional academic talent**

SKILLS

Programming Languages: Python, Java, C/C++

Web Development: HTML/CSS, Javascript, ReactJS, Django, MongoDB, SQL(Postgres), Bootstrap

Softwares and Tools: Git & GitHub, Docker, L^AT_EX, Autodesk Inventor, MS Office, Canva, Visual Studio

Languages: English (Full Professional Proficiency), French (Elementary Proficiency), Hindi (Native)

RELEVANT COURSES

Computer Science: Introduction to Computer Science, Data Structures and Algorithms, *Computing Laboratory**

Mathematics: Calculus, Linear Algebra and Differential Equations, Probability and Stochastic Processes, Discrete Mathematical Structures, *Linear Algebra and its Applications**, *Differential Equations**, *Optimization Methods and Applications**

Other: Introduction to Electrical Engineering, EM Waves and Quantum Mechanics, Principles of EM Materials, *Digital Electronics**, *Cognitive and Intelligent Systems**

(*Ongoing Courses**)

EXTRACURRICULARS

Developer | *DevClub, IIT Delhi*

Sept 2022 – Present

- Working on essential expansion of DevClub's flagship project, *Citadel*, a digital library of all course-related material and past question papers.
- Developing CI/CD pipeline using GitHub Workflows and Actions to enable DevClub's DeployBot to initialize the repositories with git secret and framework-specific pre-hooks

Technical Representative | *International Programs, IIT Delhi*

Aug 2022 – Present

- Developing the Backend for a Foreign Internship Portal to streamline the application, verification and acceptance process for students as well as professors for international research internships, such as the one I am applying to.

Technical Executive | *Student Incubation Cell, IIT Delhi*

Aug 2022 – Present

- Built essential pages and components for the complete overhaul of the club website on an urgent basis, to be displayed to various Start-up founders, Investors, and Venture Capitalists.

Executive | *Physics and Astronomy Club, IIT Delhi*

Aug 2022 – Present

- Developing and maintaining the club website, as well as managing the conduction of various flagship events.